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EXAMINER	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MOMOE ADACHI
and SHIGERU FUJITA

Appeal 2009-006748
Application 10/616,716
Technology Center 1700

Before EDWARD C. KIMLIN, ADRIENE LEPIANE HANLON, and PETER F. KRATZ, *Administrative Patent Judges*.

HANLON, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

A. STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134 from an Examiner's decision finally rejecting claims 1-5 and 7-19, all of the pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

The subject matter on appeal is directed to a battery. Claim 1, reproduced below, is illustrative.

> 1. A battery comprising a cathode, an anode, and an electrolyte, wherein,
>
> (a) the capacity of the anode includes both of a capacity component obtained by insertion and extraction of a light metal and a capacity component obtained by deposition and dissolution of the light metal,
>
> (b) the electrolyte contains a light metal salt having a M-O bond wherein M represents any of boron (B), phosphorus (P), aluminum (Al), gallium (Ga), indium (In), thallium (Tl), arsenic (As), antimony (Sb) or bismuth (Bi),
>
> (c) the light metal is deposited on the anode at an open circuit voltage lower than overcharge voltage,
>
> (d) a ratio X/Y is at least 0.05 to at most 3.0, X being the capacity component obtained by deposition and dissolution of the light metal and Y being the capacity component obtained by insertion and extraction of the light metal, and
>
> (e) the capacity of the anode obtained by insertion and extraction of the light metal is smaller than the capacity of the cathode.

Br., Claims Appendix.[2]

[2] Appeal Brief dated September 9, 2008.

The following Examiner's rejections are before us on appeal:

(1) Claims 1-5, 7-11, 13-16, 18, and 19 are rejected under 35 U.S.C. § 103(a) as unpatentable over Kawakami (US 6,949,312, issued September 27, 2005) in view of Fujita (WO 01/22519, published March 29, 2001)[3] and Iwamoto (WO 00/33403, published June 8, 2000).[4]

(2) Claim 12 is rejected under 35 U.S.C. § 103(a) as unpatentable over Kawakami in view of Fujita and Iwamoto and further in view of Morigaki (US 2002/0061448, published May 23, 2002).

(3) Claim 17 is rejected under 35 U.S.C. § 103(a) as unpatentable over Kawakami in view of Fujita and Iwamoto and further in view of Yoshioka (US 2001/0005558, published June 28, 2001).

B. ISSUE

As for claim 1, the Appellants do not dispute the Examiner's factual findings as to Kawakami, Fujita, and Iwamoto. Rather, the Appellants contend that there is no suggestion to combine Fujita and Kawakami in the manner proposed by the Examiner. Br. 8. The Appellants do not present separate arguments for any of dependent claims 2-5 and 7-19.

Therefore, the sole issue on appeal is:

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[3] The Examiner relies on US 6,884,546 to Fujita issued April 26, 2005, as an English translation of the WO 01/22519 publication. *See* Final Office Action dated December 28, 2007 ("Final"), at 2. The Appellants do not oppose. Therefore, we will refer to the disclosure of US 6,884,546 in this opinion as evidence of the disclosure of the WO 01/22519 publication.

[4] The Examiner relies on US 6,824,920 to Iwamoto issued November 30, 2004, as an English translation of the WO 00/33403 publication. *See* Final 2. The Appellants do not oppose. Therefore, the disclosure of US 6,824,920 has been relied on as evidence of the disclosure of the WO 00/33403 publication.

Did the Examiner err in concluding that the battery recited in claim 1 would have been obvious to one of ordinary skill in the art in view of the combined teachings of the applied prior art?

For reasons set forth in the Examiner's Answer dated December 2, 2008 ("Ans."), we answer this question in the negative. We add the following for emphasis.

C. DISCUSSION

Kawakami discloses a rechargeable lithium battery that has a prolonged charging and discharging cycle life and has a high capacity and a high energy density. Kawakami 5:59-62. The Examiner found, and the Appellants do not dispute, that the battery disclosed in Kawakami has an anode capacity that is based on insertion and extraction of a light metal. Ans. 7; Br. 7. There is also no dispute that the cathode capacity of the battery disclosed in Kawakami is made to be larger than the anode capacity (item (e) in claim 1). Ans. 3; Br. 8; Kawakami 29:52-54.

The Examiner found that Kawakami does not disclose (1) an anode capacity obtained by *both* insertion and extraction *and* deposition and dissolution of a light metal (item (a) in claim 1), (2) a light metal deposited on the anode at an open circuit voltage lower than overcharge voltage (item (c) in claim 1), and (3) a ratio X/Y of at least 0.05 to 3.0 (item (d) in claim 1). Nonetheless, the Examiner found, and the Appellants do not dispute, that Fujita discloses a rechargeable battery comprising these features. Ans. 4; Br. 8.

The Examiner concluded that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kawakami's battery with the teachings of Fujita for the benefit of improving

the overall performance of the battery by depositing lithium after charging." Ans. 4.

The Appellants generally argue that "the Examiner has used impermissible hindsight to combine the cited art to arrive at Appellant's claimed invention." Br. 8. Moreover, the Appellants contend that "one having skill in the art would not have received a suggestion from *Kawakima* [sic, *Kawakami*] to include an [sic, a] cathode capacity that is larger than an anode capacity in *Fujita's* device." Br. 8.

The Appellants' arguments are not persuasive of reversible error. First, the rejection on appeal is based on Kawakami in view of Fujita *not* Fujita in view of Kawakami as urged by the Appellants.[5] In other words, the Examiner is modifying the battery of Kawakami to include the various features disclosed in Fujita for the purpose of "improv[ing] the battery by achieving a high energy density and excellent cycle characteristic." Ans. 7-8.

Second, the Examiner's conclusion of obviousness is not based on impermissible hindsight. Fujita discloses that deposition on an anode at an open circuit voltage lower than the overcharge voltage and an X/Y ratio as recited in claim 1 results in a high energy density and an improved cycle characteristic. *See, e.g.*, Fujita 13:1-30, 17:65-18:30, 19:37-45. Thus, on this record, it is reasonable to conclude that one of ordinary skill in the art would have seen a benefit in using these features to improve the

[5] For completeness, we note that the Examiner's rejection of claim 1 is based on Kawakami in view of Fujita *and* Iwamoto. The Appellants do not dispute the Examiner's factual findings or conclusions of law as to Iwamoto. Therefore, it is not necessary to include Iwamoto in our discussion here.

rechargeable battery of Kawakami. The Appellants do not direct us to any evidence to the contrary.

As a final point, we note that the Appellants do not direct us to any evidence of secondary considerations of non-obviousness, such as unexpected results.

D. DECISION

The decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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